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10/571,181	03/09/2006	Matthias Viehmann	82520	9626

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EXAMINER	
WILLIAMS, DON J	
ART UNIT	PAPER NUMBER
2878	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/571,181	VIEHMANN, MATTHIAS	
	Examiner	Art Unit	
	DON WILLIAMS	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wyatt et al (7,162,161) in view of Harvey et al (5,093,553).

As to claim 1, Wyatt et al disclose (fig. 5) at least one electrical conductor (60, 70) formed as a single-wire or multi-wire line or cable (60, 70) which connects devices, subassemblies or circuit components of the piece of electrical equipment (62, 72, 230) to one another, means (62, 72) for guiding light, an array of transformer (230), and at least one optical fiber (62, 72) which envelopes one or more wire cores (60, 70) of the electrical conductor and thus simultaneously forms the electrical insulation of a line or the shielding of a cable (60, 70), (column 14, lines 17-26). Wyatt et al fails to explicitly disclose an arc is formed from the site of its formation and a monitoring and evaluating unit electrically connected to the transformer for evaluating the signals. Harvey et al disclose optical fiber (16) which guide the light that emerges when an arc (62) is formed from the site (30) of its formation, and a monitoring and evaluating unit (12, 14) for evaluating the signals, (column 4, lines 60-65, column 5, lines 1-15, fig. 3, lines 65-68, column 6, lines 1-30). It would have been obvious for one of ordinary skill in the art to

modify Wyatt et al in view of Harvey et al to incorporate the arc welding site to generate the arc which is transmitted through the fiber into the optical transformer resulting in an output that is monitored and process by the detector and the signal processing module in order to improve the stabilization of electrical equipment an minimize accidental arcs throughout the system.

As to claim 2, Harvey et al discloses (fig. 1) that the arrangement responds to an arc (62) which originates from the electrical conductor (16) whereby the light originating from the arc (62) is coupled to the optical fiber (16) directly on the inside of the optical fiber (16), (column 5, lines 1-15, column 6, lines 21-31).

As to claim 3, Harvey et al discloses (fig. 1) that the arrangement responds to an arc (62) which arises at a contact site (30) of electrical conductor (16) with other units of the piece of electrical equipment (12, 24, 44, 64), this site (30) being formed as a clamp (34) or plug (34) connection whereby the optical fiber (16) is guided into the contact site (30) and the light originating from the arc (62) is coupled axially to a front surface of the optical fiber (16), (column 4, lines 60-65, column 5, lines 1-15, column 6, lines 1-30).

As to claim 4, Harvey et al disclose (fig. 1) means (30) for disconnecting the current through the circuit components (16, 14, 22) of the piece of electrical equipment that are affected by the arc (62) and these means (30) are actuated or activated by the monitoring and evaluating unit (12, 14) based on the detection of the arc (62), (column 4, lines 60-65, column 5, lines 1-15, column 6, lines 1-30).

As to claim 5, Wyatt et al disclose (fig. 5) that the optical fiber (62, 72) enveloping the one or more wire cores (60, 70) of the electrical conductor (62, 72) is enveloped by

an additional electrically insulating cladding that is not transparent to light, (column 14, lines 17-27).

As to claim 6, Wyatt et al disclose that it is well known in an optical fiber light is guided by the fibre core but in practice the light travels in the core and in the immediately adjacent cladding which constitutes the inner surface of the additional outer cladding is structured in an optically reflecting manner wherein a light-reflecting foil is preferably disposed on its inner side for this purpose, (column 6, lines 38-41).

As to claim 7, Wyatt et al disclose (fig. 5) an electrical conductor (60, 70) that is uneven on its outer surface further characterized in that the electrical conductor (60, 70, 62, 72) is provided with a compensating layer that is preferably light-reflecting and is arranged between it an the optical fiber (62, 72) in order to obtain an even surface, (column 14, lines 17-26).

As to claim 8, Wyatt et al disclose (fig. 5) that the electrical conductor (60, 70) that is structured as a wire or cable (60, 70) is enveloped by several optical fibers (62, 72) separated by intermediate layers (column 14, lines 17-26).

As to claim 9, Wyatt et al disclose (fig. 5) that the combination conductor (60, 70) formed by the enveloping of the electrical conductor (60, 70) with the optical fiber (62, 72) is formed as a line that can be trimmed in its length, (column 14, lines 17-26).

As to claims 10-13, 18, Wyatt et al disclose (fig. 5) optical fiber (62, 72), (column 14, lines 17-26). Harvey et al disclose (fig. 1) optical fiber (16), (column 5, lines 1-5). Wyatt et al in view of Harvey et al is silent of explicitly disclosing that optical fibers consist of polymer, polymethyl methacrylate, polymethylpentene, and polycarbonate.

Polymers are well known in the art for the formation of optical fibers. It would have been obvious for one of ordinary skill in the art to modify Wyatt et al in view of Harvey et al to use any type of polymer properties as claimed in order to form a durable optical fiber resulting in insulation used to encase conductive wirings.

As to claim 14, Wyatt et al disclose (fig. 5) an array of optical/electrical transformer (230), (column 14, lines 17-26). Wyatt et al is silent of explicitly disclosing filters which are used for suppressing the effect of extraneous light. Harvey et al disclose (fig. 3) optical line filters (56, 60), (column 5, lines 65-68, column 6, lines 14-20). It would have been obvious for one of ordinary skill in the art to modify Wyatt et al in view of Harvey et al to arrange the filters along the optical path of the transformer in order to allow selective light to pass and suppress or block out extraneous light resulting in improving the performance of the device.

As to claim 15, Harvey et al disclose (fig. 5) that the optical transformer (230) is constructed in the form of a cap that can be attached to an axial end of the optical fiber (62, 72) or as a disk that can be pushed open whereupon the electrical conductor (60, 70) projects through the cap or disk, (column 14, lines 17-26).

As to claim 16, Harvey et al disclose (fig. 5) that the optical/electrical transformer (230) can be screwed onto an axial end of the optical fiber (62, 72), (column 14, lines 17-26).

As to claim 17, Harvey et al disclose (fig. 5) that the optical/electrical transformer (230) is sealed in the optical fiber (62, 72), (column 14, lines 17-26).

As to claim 19, Harvey et al disclose (fig. 5) that the optical fibers (62, 72) of several electrical conductors are guided onto an optical/electrical transformer (230), (column 14, lines 17-26).

As to claim 20, Wyatt et al disclose an optical/electrical transformer (230), (column 14, lines 17-26). Wyatt et al also disclose (fig. 3) a receiver (38), (column 13, lines 25-27). Wyatt et al is silent of explicitly disclosing that the optical/electrical transformer is formed as a CCD line, a CCD matrix, or a CMOS array. Harvey et al disclose (fig. 3) a hybrid photodiode (58), (column 6, lines 1-8). CCDs, CMOS, photodiodes, photodetectors, and photosensors are well known in the art as light sensitive devices. It would have been obvious for one of ordinary skill in the art to modify Wyatt et al in view of Harvey et al to arrange a ccd within an optical/electrical transformer in order to form a ccd line resulting in providing accurate monitoring and evaluating of the optical/electrical output.

As to claim 21, Wyatt et al disclose (fig. 5) that an axial end of an optical fiber (62, 72) that is not sealed off by an optical/electrical transformer (230) is mirrored-coated or is provided with a reflecting cap, (column 14, lines 17-26).

As to claim 22, Wyatt et al disclose (fig. 3) that the optical emitter (32) is disposed in the reflecting cap (36) for conducting a self-test of the arrangement, wherein the cap (36) is formed as a semi-transparent mirror which is transparent to light emitted from the optical transmitter (32) disposed in the cap, (36), (column 13, lines 1-15).

As to claim 23, Wyatt et al disclose (fig. 5) that light intensifiers are disposed in segments in optical fibers (62, 72) with long line lengths, (column 14, lines 17-26).

As to claim 24, Wyatt et al disclose (fig. 5) that the optical fiber (62, 72) enveloping the electrical conductor (60, 70) serves both for the coupling of the light of a possible arc as well as for the transmission of other useful signals within the monitored piece of electrical equipment (230), (column 14, lines 17-26).

As to claim 25, Harvey et al disclose (fig. 1) that the light signals caused by accidental arcs (62) and useful optical signals are differentiated with the help of reference curves filed in the monitoring and evaluating unit (12) for different types of accidental arcs (62), (column 4, lines 60-67).

As to claim 26, Wyatt et al disclose (fig. 3, fig. 5) that the optical/electrical transformer (230) and light emitting component (32) present in the case of using optical fiber (62, 72) for the transmission of useful signals are coupled by means of a slot/clamping technique (connection) for coupling and uncoupling light from the outside to the waveguide (62, 72) wherein they are impressed into the waveguide (62, 72) by a claw-like (connection) formation with projecting optically active elements, (column 14, lines 17-26).

As to claim 27, Wyatt et al disclose (fig. 3, fig. 5) that information is exchanged between optical/electrical transformer (230) and monitoring and evaluating unit (34) via an electrical conductor (60, 70) enveloped by an optical fiber (62, 72), (column 13, lines 20-27, column 14, lines 17-26).

As to claim 28, Wyatt et al disclose (fig. 5) that information is exchanged between optical/electrical transformer (230) and monitoring and evaluating (34) via a power line

(60, 70) serving simultaneously for the power supply of the monitored piece of electrical equipment, (column 13, lines 20-27, column 14, lines 17-26).

Response to Arguments

Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DON WILLIAMS whose telephone number is (571)272-8538. The examiner can normally be reached on 8:30a.m. to 5:30p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Don Williams/
Examiner, Art Unit 2878

/Georgia Y Epps/
Supervisory Patent Examiner, Art Unit 2878